

# C-A OPERATIONS PROCEDURES MANUAL

## Text Pages 2 through 4

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Revision 01  
April 28, 2004

## **8.1.8 LEBT Bunchers Turn On**

### **1. Purpose**

To provide instructions for Linac staff on how to turn on the rf Bunchers located in the Low Energy Beam Transport.

### **2. Responsibilities**

2.1 Linac staff are responsible to turn on the Bunchers.

### **3. Prerequisites**

3.1 Transport water system is on.

3.2 Low Level rf Drive system is operating.

3.3 Qualified and trained Linac staff.

3.4 The Linac Operations Coordinator shall be consulted prior to turn on.

3.5 Check rf drive and loading coax cables are connected to all the buncher loops

### **4. Precautions**

None

### **5. Procedure**

5.1 Check that the Mod. 0 main disconnect switch is on.

- ckt. #2 is on for Buncher 3
- ckt. #3 is on for Buncher 2

5.2 Check that the main 480 VAC main RFQ 1 and Buncher #1 disconnect switch is on, located to the right of the driver amplifier cart.

- power panel #100, ckts #2, 4, 13, 16, 17, 18 & 20 are energized.
- power panel #200, ckt.#7 & 9 are on, for Buncher #1.

5.3 At Buncher 2 & 3 LCS's located in Mod. 0 Buncher #1 LCS located in RFQ monitor Rack 4 are Allen Bradley Panel View Screens. If no malfunction indications appear on the AC, turn on controls; a green off indication will appear. Remove any local lock condition and turn on the filaments.

Observe the following operating parameters:

- Filament Voltmeter ---- 5.9 - 6.3 Vac.
- Grid bias meter ---- 120 - 150 Vdc.
- The 400 watt rf ampere meter is pulsing.
- Within 2 minutes the red light should come on.
- The malfunction light should be gone from the High Voltage controls.
- Buncher #1 is located to the left of the ICR entrance, Bunchers 2 & 3 are at Mod. 0

- 5.4 Check to see if the amplitude malfunction LED is blinking.
- 5.5 If no malfunction indications appear on the high voltage turn on screen; a green off indication will appear. Remove any local lock condition and turn the High Voltage on. If a remote lock condition exists, clearance to operate must come from the Linac Control Room. If a malfunction is indicated, check for transport water flow. Observe the following operating parameters:
- Screen Grid P.S. ----- 550 - 600 Vdc.
  - Anode P.S. ---- 4.5 - 5.0 kVdc.
- 5.6 Check that the phase and amplitude reference controls are set for remote operation.
- 5.7 Check spreadsheet for the Preinjector file and last correct Buncher phase and amplitude settings. Reset to the last saved file in all modes if necessary.
- 5.8 If all malfunction lights go out, the Buncher is ready to run. If not, check the following scope monitors for correct operation:
- RF Gradient, amplitude is 0.2 Volts.
  - Phase Control Loop is nulled.
  - Phase Monitor Loop is nulled.
- 5.9 If Buncher is still not operating at the correct level, tune the cavity frequency tuner while monitoring the Buncher Reverse Power, tune for a minimum. Reverse Power or maximum Buncher field.
- 5.10 If problems persist, shut off all high voltage and filaments. Allow 2 minutes for the tube to cool, replace the tube, RCA 7651.
- 5.11 After replacement of tube return to instruction #3.

**6. Documentation**

None

**7. References**

None

**8. Attachments**

None